

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Stephen P.A. Fodor et al.

Serial No. 07/954,646

Filed: September 30, 1992

For: VERY LARGE SCALE IMMOBIL-  
IZED POLYMER SYNTHESIS

Examiner: L. Green

Art Unit: 1802

COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231DECLARATION OF STEPHEN P.A. FODOR  
UNDER 37 C.F.R. 1.132

Sir:

1. I am a co-inventor of subject matter claimed in the captioned application. I have read and understand the application and the pending claims of the application. The pending claims are appended to this declaration.

2. I understand that the Examiner has rejected the claims as not enabling. More specifically, I understand that the Examiner has asserted that the claims are not enabled for high density arrays. This is not correct. The application explicitly discloses that high density arrays may be synthesized using, inter alia, available photoremovable protecting groups coupled to chemical "building blocks" such as nucleotides. The application discloses that the arrays may be synthesized using, inter alia, light-directed techniques wherein masks such as those used in the semiconductor industry are used to selectively deprotect a growing molecule such as an oligonucleotide. The application contains experiments wherein molecules are synthesized in arrays with a resolution of about 50 microns.

3. The disclosure of the present application correctly discloses that high density arrays of oligonucleotides may be synthesized using the techniques disclosed therein. As a demon-

stration of this statement, I and those under my direction and control have performed experiments wherein high density arrays of oligonucleotides are synthesized using the teachings of the present application. I and those under my direction and control have completed experiments wherein more than 1 million oligonucleotide synthesis sites are provided on a substrate in an area of less than \_\_\_\_x\_\_\_\_ cm. A full discussion of the experiment is provided as Attachment A, which is incorporated herein by reference. Attachment B provides a fluorescence scan of the resulting chip after exposure to \_\_\_\_\_. The fluorescence scan demonstrates that the array was synthesized in accordance with the expected monomer sequences. Therefore, the subject application discloses techniques wherein DNA chips with more than 1,000,000 different molecules may be synthesized at known locations thereon.

Date: \_\_\_\_\_

By: \_\_\_\_\_  
Stephen P.A. Fodor

Enclosures:

1. Pending claims
2. Attachment A
3. Attachment B

SPAF:dc  
WORK/16528J/000180.P05